

Appl. 10/614,740

Reply to Office Action of May 16, 2006

REMARKS

An essential fact underlying each rejection of each claim is the content disclosed in JP 11-210271 to Sagawa et al.

Submitted herewith is the translation of to Sagawa et al JP Patent '271. Previously, Applicant pointed out that "Sagawa et al. taught nothing relevant to utility poles or cross-arms for utility poles," and provided a machine translation of Sagawa et al. stating that it is used for various kinds of guard fences with pipe-like post and beam pipe, etc.

The Examiner stated in the Office Action of May 16, 2006 that "[t]he examiner believes that the applicant got the translation in error," and relied in stead on an abstract of Sagawa et al.'271, "stating that the invention is used for steel power[sic] that supports a power transmission line having arm coated and insulated to prevent electrical shock on snake or the like when crawling up the tower." Office Action at p. 6.

As the translation provided by a certified translator submitted herewith shows, Sagawa et al. is directed to a "BEAM PIPE MOUNTING STRUCTURE" and is especially useful as "it becomes guard fences such as a promenade of a park." [0006]

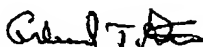
Disclosed by Sagawa et al JP '271 is a "pipe beam mounting structure [that] comprises loosely inserting the end of a beam pipe 20 into a mounting hole 11 disposed on the side of a tubular post 10 leaving a gap, and driving a wedge-shaped pipe anchorage device 30 having a side 31 capable of closing the majority of the gap 12 and anti-slip projections 32 into this gap. In particular, the wedge-shaped pipe anchorage device 30 comprises a plastic molded compact, and the tubular post 10 and the beam pipe 20 comprise plastic coated metal pipes with an imitation wood." Translation at 1.

Accordingly, Applicant is quite right in his statement as to the content of the disclosure of Sagawa et al JP '271. The Sagawa et al.'271 disclosure has nothing to do with utility poles, utility pole cross-arms, or power transmission lines of any kind.

Applicant respectfully submits that with this submission that claims 28-59 should be allowed and the application be passed to issue.

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Respectfully submitted,



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(54) TITLE OF THE INVENTION: BEAM PIPE MOUNTING STRUCTURE

(57) ABSTRACT

PROBLEM: To provide a beam pipe mounting structure capable of easily inserting a beam pipe into the mounting hole of a tubular post without gaps by simple means, and completely eliminating play or rotation of the beam pipe.

SOLUTION: This beam pipe mounting structure comprises loosely inserting the end of a beam pipe 20 into a mounting hole 11 disposed on the side of a tubular post 10 leaving a gap 12, and driving a wedge-shaped pipe anchorage device 30 having a side 31 capable of closing the majority of the gap 12 and anti-slip projections 32 into this gap 12. In particular, the wedge-shaped pipe anchorage device 30 comprises a plastic molded compact, and the tubular post 10 and the beam pipe 20 comprise plastic coated metal pipes with an imitation wood pattern.

CLAIMS

1. A beam pipe mounting structure, characterized by loosely inserting the end of a beam pipe into a mounting hole disposed on the side of a tubular post leaving a gap, and driving a wedge-shaped pipe anchorage device having a side capable of closing the majority of the gap and anti-slip projections into this gap.
2. A beam pipe mounting structure according to claim 1, wherein the wedge-shaped pipe anchorage device comprises a plastic molded compact.
3. A beam pipe mounting structure according to claim 1, wherein the tubular post and the beam pipe comprise plastic coated metal pipes with an imitation wood pattern.

DETAILED DESCRIPTION OF THE INVENTION

[0001]

INDUSTRIAL FIELD OF APPLICATION

The present invention pertains to a beam pipe mounting structure used in various types of protective fences.

[0002]

PRIOR ART

Protective fences are often installed in locations such as sidewalks or walkways in public parks. Such protective fences are usually constructed by loosely inserting the end of a beam pipe into a mounting hole disposed on the side of a tubular post leaving a gap, and packing a caulking material or driving a flanged cylindrical member into this gap.

[0003]

The beam pipe is loosely inserted into the mounting hole of the tubular post to facilitate the operation of inserting the beam pipe. A caulking material is packed or a flanged cylindrical member is driven into the gap between the mounting hole and the beam pipe to hide the gap and eliminate play or rotation of the beam pipe.

[0004]

PROBLEMS THAT THE INVENTION IS TO SOLVE

Packing a caulking material into a gap in such a beam pipe mounting structure by prior art is troublesome, however, and requires skill in packing caulking material. Factors such as a poor connection with the beam pipe or contraction due to temperature differences may also cause the caulking material to separate, preventing it from completely eliminating play and rotation of the beam pipe.

[0005]

When driving a flanged cylindrical material, it is not easy to smoothly insert the flanged cylindrical material into the mounting hole of the tubular post. Even if it is successfully driven into the mounting hole, it is difficult to insert a beam pipe into this without a gap, which prevents the complete elimination of play and rotation of the beam pipe. A flanged cylindrical material also stands out too much and does not look good.

[0006]

Tubular posts and beam pipes comprising plastic coated metal pipes having good-looking imitation wood patterns are often used in protective fences, especially in locations such as walkways in public parks. Such imitation wood patterns, however, are not smooth, but irregular. As a result, these irregularities interfere and make it very difficult to insert a flanged cylindrical member or a beam pipe into the mounting hole of a tubular post.

[0007]

The present invention was designed to solve such problems. Its purpose is to provide a beam pipe mounting structure capable of easily inserting a beam pipe into the mounting hole of a tubular post without gaps by simple means, and completely eliminating play or rotation of the beam pipe.

[0008]

MEANS OF SOLVING THE PROBLEMS

To achieve this purpose, a beam pipe mounting structure is constituted by loosely inserting the

end of a beam pipe into a mounting hole disposed on the side of a tubular post leaving a gap, and driving a wedge-shaped pipe anchorage device having a side capable of closing the majority of the gap and anti-slip projections into this gap (invention of Claim 1).

[0009]

The wedge-shaped pipe anchorage device in this constitution may comprise a plastic molded compact (invention of Claim 2).

[0010]

The tubular post and the beam pipe in this constitution may comprise plastic coated metal pipes with an imitation wood pattern (invention of Claim 3).

[0011]

OPERATION

According to the present invention, a wedge-shaped pipe anchorage device is driven into a gap formed between the mounting hole of a tubular post and a beam pipe to both close the gap by the side of the pipe anchorage device and anchor the wedge-shaped pipe anchorage device, thereby preventing play and rotation of the beam pipe.

[0012]

The anti-slip projections of the wedge-shaped pipe anchorage device also keep the pipe from separating from the pipe anchorage device. The wedge-shaped pipe anchorage device need not be inserted all the way around the beam pipe, and so does not stand out and mar the appearance.

[0013]

A wedge-shaped pipe anchorage device comprising a plastic molded compact, in particular, is flexible enough to deform slightly when driven into the gap, and so tightly anchors the mounting hole and the beam pipe to effectively prevent play and rotation of the beam pipe.

[0014]

Even a tubular post and a beam pipe comprising plastic coated metal pipes with an imitation

wood pattern can be easily inserted into the gap without interference by the irregularities of the imitation wood patterns.

[0015]

WORKING EXAMPLE

Next, the present invention will be discussed in detail while referring to a working example shown in the appended drawings. Fig. 1 (A) is a partially cutaway side elevation showing an example of the connecting structure of a beam pipe of the present invention, and (B) is a perspective view showing an example of a wedge-shaped pipe anchorage device.

[0016]

In Fig. 1, 10 is a tubular post, and has a mounting hole 11 formed in the side of this tubular post 10. The end of a beam pipe 20 is loosely inserted in the mounting hole 11 so as to form a gap 12.

[0017]

This tubular post 10 and this beam pipe 20 may be coated metal pipes such as copper or aluminum pipes which have been galvanized or coated with plastic on the surface of these metal pipes. Plastic coated metal pipes with an imitation wood pattern are especially ideal from the standpoint of appearance for protective fences in locations such as walkways in public parks.

[0018]

Next, a wedge-shaped pipe anchorage device 30 is driven into the gap 12 between the mounting hole 11 of this tubular post 10 and the beam pipe 20. As shown in Fig. 1(A), this wedge-shaped pipe anchorage device 30 has a side 31 capable of closing the majority of the gap 12, and anti-slip projections 32.

[0019]

The side 31 of this driven-in wedge-shaped pipe anchorage device 30 closes the majority of the gap 12, and the anti-slip projections 32 stop the wedge-shaped pipe anchorage device 30 separating from the gap 12.

[0020]

A flange 33 is also formed in the center of the side 31. This flange 33 becomes a strike-face when the wedge-shaped pipe anchorage device 30 is driven into the gap 12. Because the side 31 can also become a strike-face, the flange 33 may be omitted.

[0021]

This wedge-shaped pipe anchorage device 30 is a plastic molded compact such as polycarbonate, polyethylene, Nylon, or ABS resin, or is made of metal. A plastic molded compact, in particular, is flexible enough to deform slightly when driven into even a gap which is more or less irregular in shape, and so tightly anchors the mounting hole and the beam pipe to effectively prevent play and rotation of the beam pipe.

[0022]

To achieve the beam pipe mounting structure of the present invention, first, tubular posts formed with mounting holes 11 are set in the ground at regular intervals. Next, the end of a beam pipe 20 is loosely inserted into the mounting hole 11 of this tubular post 10 leaving a gap 12, the end of the beam pipe 20 is stopped by a check pin 40, and a cap is placed over the top of the tubular post 10.

[0023]

Next, as shown in Fig. 2, the anti-skid projections 32 part of the wedge-shaped pipe anchorage device is inserted into the gap 12 between the mounting hole 11 of the tubular post 10 and the beam pipe 20, and a wooden hammer or the like is used to drive in the wedge-shaped pipe anchorage device 30 while striking the flange 12. This pushes the side 31 part of the wedge-shaped pipe anchorage device 30 into the gap 12 to close the majority of the gap 12, which firmly fixes the beam pipe 20 in the mounting hole 11 of the tubular post 10.

[0024]

A beam pipe 20 may also be attached to a tubular post 10 as a unit. Several such beam pipes are usually attached to a tubular post 10 above and below. A gap 12 usually forms below the beam pipe 20

and the wedge-shaped pipe anchorage device 30 is driven into this gap 12, but a gap may form above or next to the beam pipe 20, in which case, the anchorage device is driven into this gap 12.

[0025]

The wedge-shaped pipe anchorage device 30 is usually driven into a gap 12 with a beam pipe 20 which has been inserted horizontally, but can be driven into a gap 12 with a beam pipe 20 which has been inserted diagonally. In this case, it is preferable that both edges of the side 31 of the wedge-shaped pipe anchorage device 30 be shaved slightly before use.

[0026]

EFFECTS OF THE INVENTION

As discussed above, the beam pipe mounting structure of the present invention is capable of easily inserting a beam pipe into the mounting hole of a tubular post without gaps by simple means, and completely eliminating play or rotation of the beam pipe.

[0027]

The beam pipe mounting structure of the present invention is especially effective when applied to a protective fence demanding a good appearance, such as a walkway in a public park, using plastic coated metal pipes with an imitation wood pattern.

BRIEF EXPLANATION OF THE DRAWINGS

FIG. 1 (A) is a partially cutaway side elevation showing an example of the connecting structure of a beam pipe of the present invention, and (B) is a perspective view showing an example of a wedge-shaped pipe anchorage device.

FIG. 2 is a partially cutaway perspective view illustrating means for achieving the beam pipe mounting structure of the present invention.

EXPLANATION OF REFERENCE NUMBERS

- 10 Tubular post
- 11 Mounting hole

- 12 Gap
- 20 Beam pipe
- 30 Wedge-shaped pipe anchorage device
- 31 Side
- 32 Anti-slip projections
- 40 Check pin

FIG. 1

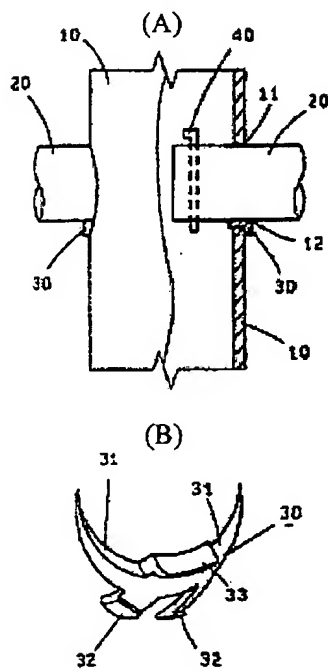


FIG 2

